CLAIMS;

in Patent Application entitled

ELECTRONIC FLUORESCENT LAMP BALLAST

1. A gas discharge lamp ballast arrangement comprising:

a first terminal at which exists, with respect to a reference terminal, a first AC voltage having a first peak-to-peak magnitude and characterized by having four time segments: (i) a first time segment having a first duration, all during which the instantaneous magnitude of the AC voltage increases from a first voltage level to a second voltage level by way of a gradually diminishing rate of increase; (ii) a second time segment having a second duration, all during which the instantaneous magnitude of the AC voltage remains substantially constant at the second voltage level; (iii) a third segment having a third duration, all during which the instantaneous magnitude of the AC voltage decreases from the second voltage level back to the first voltage level by way of a gradually diminishing rate of decrease ;and (iv) a fourth time segment having a fourth duration, all during which the instantaneous magnitude of the AC voltage remains substantially constant at the first voltage level; the first duration being approximately equal to the second duration;

a second terminal at which exists, with respect to the reference terminal, a second AC voltage; the second AC voltage being characterized by being different from the first AC voltage in such manner as to cause a substantially sinusoidal output AC voltage to exist between the first and the second terminal; and

matching means operative to connect a gas discharge lamp between the first and the second terminals, thereby to cause a manifestly magnitude-limited current to flow through the gas discharge lamp.

2. The gas discharge lamp ballast arrangement of claim 1 wherein the substantially sinusoidal AC output voltage has a peak-to-peak magnitude about twice as large as the first peak-to-peak magnitude.

3. The gas discharge lamp ballast arrangement of claim 1 wherein the matching means includes a reactive current-limiting means.

4. An arrangement comprising:

source means providing a DC voltage between a first and a second DC terminal;

inverter means connected with the DC terminals and operative to provide a sinusoidal AC voltage between a first and a second AC terminal; the AC voltage having a fundamental period; the inverter means being operative for a part of each fundamental period to cause the first AC terminal to be at the same potential as that of the first DC terminal; the part having a duration approximately one quarter that of the fundamental period; and

circuit means operative to connect a gas discharge lamp with the AC terminals.

5. An arrangement comprising:

a source providing a DC voltage between a first and a second DC terminal;

first means connected with the DC terminals and operative to provide a sinusoidal AC voltage between a first and a second AC terminal; the AC voltage having a fundamental period; the first means being operative for about 25% of the time during each fundamental period to cause the first AC terminal to be at the same potential as that of the first DC terminal; and

second means connecting a gas discharge lamp with the AC terminals.

6. An arrangement comprising:

source means providing a DC voltage between a first and a second DC terminal;

inverter means connected with the DC terminals and operative to provide a substantially sinusoidal AC voltage between a first and a second AC terminal; the AC voltage having a fundamental period; the inverter means including electronic means operative for a first brief part of each fundamental period to cause the first AC terminal to be electrically connected with the first DC terminal, such that there is substantially no voltage difference between the first AC terminal and the first DC terminal during the first brief part; the first brief part having a duration approximately equal to one quarter that of the fundamental period; and

circuit means operative to connect a gas discharge lamp with the AC terminals.

7. The arrangement of claim 6 wherein the electronic means is also operative for a second brief part during each fundamental period to cause the first AC terminal to be electrically connected with the second DC terminal; the duration of the second part being substantially the same as that of the first part.

8. An arrangement comprising:

a reference terminal;

a DC source connected with the reference terminal and operative to provide a DC voltage between a positive DC terminal and a negative DC terminal;

half-bridge inverter connected with the DC terminals and operative, as viewed from the reference terminal, to provide a first non-sinusoidal AC voltage at a first AC terminal;

a tank inductor connected between the first AC terminal and a second AC terminal; the second AC terminal exhibiting, as viewed from the reference terminal, a second non-sinusoidal AC voltage; a third AC voltage being present across the tank inductor; the third AC voltage being of sinusoidal waveshape; and

circuit means operative to provide for disconnectable connection of a gas discharge lamp across the tank inductor.

9. The arrangement of claim 8 wherein: (i) a first rectifier is connected between the second AC terminal and the positive DC terminal, with the first rectifier's cathode being connected with the positive DC terminal; and (ii) a second rectifier being connected between the second AC terminal and the negative DC terminal, the second rectifier's anode being connected with the negative DC terminal.

10. The arrangement of claim 8 wherein a first tank capacitor is connected between the first AC terminal and the reference terminal.

11. The arrangement of claim 8 wherein a second tank capacitor is connected between the second AC terminal and the reference terminal.

12. The arrangement of claim 8 wherein the half-bridge inverter includes a first transistor connected between the negative terminal and the first AC terminal and a second transistor connected between the positive DC terminal and the first AC terminal.